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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,833	01/10/2001	John R. Doner	GEH-01-081	8230

7590 01/26/2005

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EXAMINER

SHAAWAT, MUSSA

ART UNIT PAPER NUMBER

2128

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/757,833

Applicant(s)

DONER, JOHN R.

Examiner

Mussa A Shaawat

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-17 and 19-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,2,4-17 and 19-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the application filed on January 11, 2000. Claims 1-2, 4-17, and 19-33 are presented for examination. Claims 1-2, and 4-15 represent a method for managing locomotives in a railyard. Claims 16-17, and 19-33 represent a network system for managing locomotives in a railyard.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Matheson patent No. (5,623,413) referred to hereinafter as Matheson.

As per claim 1, Matheson teaches a method for managing locomotives in a railyard including a parking yard and a service yard, based on possible future states of the parking yard and the service yard, using a system including a computer, the method comprising the steps of:

Established an initial state of the locomotives in the parking yard and service yard (see col.22 lines 42-45, and col.1 line 60-col.2 line 12, Matheson teaches " if the terminus of a given run is an interchange yard interchange i.e. service yard ... favorable manner", and whereby Matheson teaches a movement plan of trains for

departure from a switching yard i.e. "parking yard" (see Matheson col.35 line 65-col.36 line 5);

Enumerating possible present locomotive placement options; enumerating possible future railyard states arising from each possible present locomotive placement option; examining each possible future railyard state; and choosing a present option based on the examination of the possible future railyard states, see Matheson (col.11, lines 40-67, col.12, col.13, col.14, and col.15).

As per claim 2, Matheson teaches a method in accordance with claim 1 wherein the step of enumerating possible present locomotive placement options comprises the steps of: evaluating a geometry of the parking yard; and evaluating a geometry of the service yard, see Matheson (col.33, lines 1-65).

As per claim 4, Matheson teaches a method in accordance with claim 1 wherein the step of establishing an initial state of the locomotives in the parking yard and the service yard comprises the steps of: evaluating a present locomotive configuration of the parking yard; and evaluating a present locomotive configuration of the service yard, see Matheson (col.12, and col.22).

As per claim 5, Matheson teaches a method in accordance with claim 1 wherein the step of enumerating possible future railyard states comprises the steps of: evaluating the initial railyard state; and evaluating a yard schedule, see (col.11, 40-65, and col.14, lines 40-67).

As per claim 6, Matheson teaches a method in accordance with claim 5 wherein the step of evaluating a yard schedule comprises the steps of: evaluating an inbound

Art Unit: 2128

locomotive schedule; and evaluating an outbound locomotive schedule, see Matheson (col.11, 1-67).

As per claim 7, Matheson teaches a method in accordance with claim 6 wherein the step of evaluating a yard schedule further comprises the steps of: evaluating service requirements of inbound locomotives; evaluating a list of locomotive service types provided in the service yard; and evaluating non-standard movements of locomotives within the railyard, see Matheson (col.14, lines 40-67).

As per claim 8, Matheson teaches a method in accordance with claim 1 wherein the step of examining each possible future railyard state comprises the steps of: examining a cost of each possible future state; and examining a time based efficiency of each possible state, see Matheson (col.9, lines 43-55).

As per claim 9, Matheson teaches a method in accordance with claim 8 wherein the step of examining a cost of each possible future state comprises the steps of: examining costs incurred from delays to the outbound locomotive schedule caused by the service requirements; examining costs incurred in performing non-standard movements; examining costs incurred by schedule delays caused by non-standard movements; and examining costs incurred by late departure of a locomotive, see Matheson (col.10, 65-67 and col.10, lines 50-55).

As per claim 10, Matheson teaches a method in accordance with claim 8 wherein the step of examining a time based efficiency of each possible state comprises the steps of: examining delays to an outbound locomotive schedule caused by the service

Art Unit: 2128

requirements; and examining delays caused by non-standard movements, see Matheson (col.10, lines 17-23).

As per claim 11, Matheson teaches a method in accordance with claim 1 wherein the step of choosing a present option comprises the step of executing a locomotive management algorithm utilizing the computer, see Matheson (col.29, lines 20-25).

As per claim 12, Matheson teaches a method in accordance with claim 11 wherein the step of executing a locomotive management algorithm comprises the steps of: applying a set of yard management objectives; applying a set of parking yard management rules; and applying a set of service yard management rules, see Matheson (col.10, lines 42-50).

As per claim 13, Matheson teaches a method in accordance with claim 12 wherein the step of applying a set of yard management objectives comprises the steps of: assembling an outbound locomotive consist as scheduled; delivering an outbound locomotive consist as scheduled; reducing a total labor usage figure for labor involved in assembling and delivering an outbound locomotive consist; reducing delays in locomotive servicing; and comparing the cost of late locomotive consist departure to additional labor costs needed to assemble and deliver an outbound locomotive consist as scheduled, see Matheson (col.22, lines 25-67).

As per claim 14, Matheson teaches a method in accordance with claim 12 wherein the step of applying a set of parking yard management rules comprises the steps of: executing locomotive pull-forwards when there is a reduced number of locomotives on an affected parking track; maintaining an order of locomotives on each

Art Unit: 2128

parking track such that locomotives for later outbound locomotive consists are parked behind locomotives for earlier outbound locomotive consists; and parking a lead locomotive for an outbound locomotive consist on a parking track such that the lead locomotive is in front of other locomotives parked on the same track that are allocated for the same outbound locomotive consist, see Matheson (col.13, lines 35-65).

As per claim 15, Matheson teaches a method in accordance with claim 12 wherein the step of applying a set of service yard management rules comprises the steps of: positioning a locomotive in a queue for service on a lead-in track to a service bay that provides the appropriate service; positioning locomotives in a queue on a lead-in track in an order that allows servicing of each locomotive to be completed before each locomotive is scheduled for assembly in an outbound locomotive consist; and scheduling short service activities before long service activities when scheduling conflicts are not at issue, see Matheson (col.12, lines 63-67, and col.13, lines 1-35).

As per claim 16, Matheson teaches a networked system for managing locomotives in a railyard including a parking yard and a service yard, based on possible future states of the parking yard and the service yard, the system comprising:

Established an initial state of the locomotives in the parking yard and service yard (see col.22 lines 42-45, and col.1 line 60-col.2 line 12, Matheson teaches " if the terminus of a given run is an interchange yard interchange i.e. service yard ... favorable manner", and whereby Matheson teaches a movement plan of trains for departure from a switching yard i.e. "parking yard" (see Matheson col.35 line 65-col.36 line 5);

A client system comprising a browser; a database for storing information; a server system coupled to the client system and the database, the server system configured to: enumerate possible present locomotive placement options; enumerate possible future railyard states arising from each possible present locomotive placement option; examine each possible future railyard state; and determine a present option based on the examination of the possible future railyard states, see Matheson (col.11, lines 40-67, col.12, col.13, col.14, col.15, col., lines 15-67, and col.25, 1-67).

As per claim 17, Matheson teaches a networked system in accordance with claim 16 wherein to enumerate possible present locomotive placement options the server system further configured to: evaluate a geometry of the parking yard; and evaluate a geometry of the service yard, see Matheson (col.33, lines 1-65).

As per claim 19, Matheson teaches a networked system in accordance with claim 17 wherein to establish an initial state of the locomotives in the parking yard and the service yard server system further configured to: evaluate a present locomotive configuration of the parking yard; and evaluate a present locomotive configuration of the service yard, see Matheson (col.12, and col.22).

As per claim 20, Matheson teaches a networked system in accordance with claim 17 wherein to enumerate possible future railyard states the server system further configured to: evaluate the initial railyard state; and evaluate a yard schedule, see (col.11, 40-65, and col.14, lines 40-67).

As per claim 21, Matheson teaches a networked system in accordance with claim 20 wherein to evaluate a yard schedule the server system further configured to:

Art Unit: 2128

evaluate an inbound locomotive schedule; and evaluate an outbound locomotive schedule, see Matheson (col.11, 1-67).

As per claim 22, Matheson teaches a networked system in accordance with claim 21 wherein to evaluate a yard schedule the server system further configured to: evaluate service requirements of inbound locomotives; evaluate a list of locomotive service types provided in the service yard; and evaluate non-standard movements of locomotive within the railyard, see Matheson (col.14, lines 40-67).

As per claim 23, Matheson teaches a networked system in accordance with claim 16 wherein to examine each possible future railyard state the server system further configured to: examine a cost of each possible future state; and examine a time based efficiency of each possible state, see Matheson (col.9, lines 43-55).

As per claim 24, Matheson teaches a networked system in accordance with claim 23 wherein to examine a cost of each possible future state the server system further configured to: examine a cost of delays to the outbound locomotive schedule caused by the service requirements; and examine a cost of non-standard movements, see Matheson (col.10, 65-67 and col.10, lines 50-55).

As per claim 25, Matheson Teaches a networked system in accordance with claim 23 wherein to examine a time-based efficiency of each possible state the server system further configured to: examine costs incurred from delays to the outbound locomotive schedule caused by the service requirements; examine costs incurred in performing non-standard movements; examine costs incurred by schedule delays

Art Unit: 2128

caused by non-standard movements; and examine costs incurred by late departure of a locomotive, see Matheson (col.10, lines 17-23).

As per claim 26, Matheson teaches a networked system in accordance with claim 16 further configured to execute a locomotive management algorithm by: applying a set of yard management objectives; applying a set of parking yard management rules; and applying a set of service yard management rules, see Matheson (col.29, lines 20-25).

As per claim 27, Matheson teaches a networked system in accordance with claim 26 wherein to apply a set of yard management objectives the server system further configured to: assemble an outbound locomotive consist as scheduled; deliver an outbound locomotive consist as scheduled; reduce a total labor usage figure for labor involved in assembling and delivering a locomotive consist; reduce delays in locomotive servicing; and compare the cost of late locomotive consist departure to additional labor costs needed to assemble and deliver an outbound locomotive consist as scheduled, see Matheson (col.10, lines 42-50).

As per claim 28, Matheson teaches a networked system in accordance with claim 26 wherein to apply a set of parking yard management rules the server system further configured to: execute locomotives pull-forwards when there is a reduced number of locomotives on an affected parking track; maintain an order of locomotives on each parking track such that locomotives for later outbound locomotive consists are parked behind locomotives for earlier outbound locomotive consists; and park a lead locomotive for an outbound locomotive consist on a parking track such that the lead

locomotive is in front of other locomotives parked on the same track that are allocated for the same outbound locomotive consist, see Matheson (col.22, lines 25-67).

As per claim 29, Matheson teaches a networked system in accordance with claim 26 wherein to apply a set of service yard management rules the server system further configured to: position a locomotive in a queue for service on a lead-in track to a service bay that provides the appropriate service; position locomotives in a queue on a lead-in track in an order that allows servicing of each locomotive to be completed before each locomotive is scheduled for assembly in an outbound locomotive consist; and schedule short service activities before long service activities when scheduling conflicts are not at issue, see Matheson (col.13, lines 35-65, col.12, lines 63-67, and col.13, lines 1-35).

As per claim 30, Matheson teaches a networked system according to claim 16 wherein the client system and the server system are connected via a networked and wherein the network is one of a wide area network, a local area network, and an Intranet and the Internet, see Matheson (col.24, lines 15-67)

As per claim 31, Matheson teaches a networked system according to claim 16 wherein the server system is further configured with a displaying component for displaying various user interfaces to the user, a receiving component for receiving an inquiry to provide information from one of a plurality of users, a collection component for collecting information from users into the centralized database, a tracking component for tracking information on an on-going basis, and an accessing component

for accessing the centralized database and causing the retrieved information to be displayed on the client system, see Matheson (col.24, lines 50-67, and col.25, 1-67).

As per claim 32, Matheson teaches a networked system according to claim 31 wherein the server system further configured with a processing component for searching and processing received inquiries against the data storage device containing a variety of information collected by the collection component, see Matheson (col.25, lines 50-67, and col.26, lines 1-10).

As per claim 33, Matheson teaches a networked system according to claim 31 wherein the server system further configured with a retrieving component to retrieve information from the data storage device, see Matheson (col.26, lines 1-30).

Response to Arguments

3. Applicant's arguments filed have been fully considered but they are not persuasive.

In the remarks, the applicant argues in substance of claims 1 and 16 that; A) Matheson does not describe a method for managing locomotives in a railyard including a parking yard and a service yard, based on possible future states; B) Matheson does not describe establishing an initial state of the locomotives in the parking yard and service yard.

In response to A) Matheson teaches an interchange yard i.e. a "service yard" where the yardmaster has prior knowledge of the order and timing of the arrivals of the a train i.e. "future states of locomotives", he can set up the yard to accept those trains and make sure that the appropriate sidings are available to hold those trains in a

Art Unit: 2128

favorable manner (see Matheson col.1 lines 61-66). In addition, Matheson teaches a movement plan of trains for departure from a switching yard i.e. "parking yard" (see Matheson col.35 line 65-col.36 line 5). The invention as claimed in the instant application contains no further limitations regarding possible future states of the parking yard and the service yard of a locomotive. Therefore, Matheson's future movement plan and timing of arrivals of the trains to the parking yard meets the scope of the claimed invention "a method for managing locomotives in a railyard including a parking yard and a service yard based on possible future states".

In response to B) Matheson teaches a physical model using a computer, that follows the motion of the train i.e. "locomotive" once it has been provided by the movement planner executive with data identifying the initial state, stopping condition and the time advanced interval (see Matheson col. 22 lines 42-45, and col.22 lines 14-16). There is no limitation on the type of states of the locomotives i.e. time, position, velocity etc. Therefore, Matheson's initial state, stopping condition and advanced time meets the scope of the claimed limitation "establishing an initial state of the locomotives in the parking yard and service yard".

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2128

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Yamazaki et al. U.S. Patent No. (3,861,316) freight car classification system at level classification yard.
- Barich et al. U.S. Patent No. (6,446,912) Railcar maintenance management method.
- Kubala et al. U.S. Patent No. (4,610,206) Micro controlled classification yard.
- Minakami U.S. Patent No. (6,311,102) Physical distribution/transportation system and integrated physical distribution system.

Communication

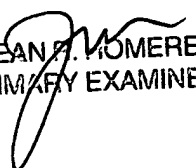
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mussa A Shaawat whose telephone number is (571) 272-3785. The examiner can normally be reached on Monday-Friday (8:30am to 5:00pm).

Art Unit: 2128

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean R Homere can be reached on (571) 272-3780. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mussa Shaawat
Patent Examiner
January 14, 2005


JEAN R. HOMERE
PRIMARY EXAMINER